

# PATENT COOPERATION TREATY

## PCT



### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 03 FEB 2005

WIPO PCT

Applicant's or agent's file reference PBA/P089315PWO		<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/GB2004/001097	International filing date (day/month/year) 15.03.2004	Priority date (day/month/year) 13.03.2003	
International Patent Classification (IPC) or national classification and IPC C08G61/08, H01B3/30, H05K1/03			
Applicant UNIVERSITY OF MANCHESTER INSTITUTE OF SCIENCE...			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  12.01.2005		Date of completion of this report  02.02.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Russell, G  Telephone No. +49 89 2399-8738 	

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-13 as originally filed

**Claims, Numbers**

1-26 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	9,13,16,17,21-26
	No: Claims	1-8,10-12,14,15,18,20
Inventive step (IS)	Yes: Claims	
	No: Claims	1-26
Industrial applicability (IA)	Yes: Claims	1-26
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Paragraph V:**

**1. Novelty and inventive step (Articles 33(2) and 33(3) PCT)**

- 1.1** D6 (GB-A-2162526) describes blends of polynorbornene with polyolefin resin and thermoplastic elastomer, the polynorbornene having been cured during blending by the addition to the blend of a curative. The polyolefin resin comprises polyethylene, polypropylene, ethylene/vinyl acetate copolymers, and ethylene/propylene copolymers, while styrene-ethylene-butylene-styrene (SEBS) resin is preferred as a thermoplastic elastomer (page 1; claims 1, 3, 4, 6, 7, 9, 10). Such resins can be considered as plastifying diluents in the sense of the current application.

Compositions comprising said blend with curative and fillers are described (see Tables). Example 7 (Table III) describes a curable composition of polynorbornene, polyethylene, phenolic curative, and silica filler.

D7 (US-A-5104940) discloses a blend of polynorbornene and olefin-based crystalline copolymers having thermoplastic elastomeric properties, said blend is prepared by heating in presence of crosslinking agent (claim 8).

The Examples 1 to 5 relate to polynorbornene compositions comprising polynorbornene, pulverant filler (calcined clay; calcined kaolin), pigment filler (TiO<sub>2</sub>), vulcanizing curative, diluent elastomeric copolymers, and other ingredients.

Said compositions fall under the scope of claim 1 of the specification, such that dielectric properties are given.

Therefore, the subject-matter of claims 1-8,10-12,14,15,18, and 20 are not considered to be novel over prior art D6 and D7 in the sense of Article 33(2) PCT.

- 1.2** D1 (US-A-6492443), considered to represent the closest prior art, discloses a norbornene polymer composition comprising a norbornene polymer and a thermosetting resin, mouldings formed from the composition, and laminates with a film formed of the composition on a metal layer. The norbornene polymer composition according to D1 is described as being excellent in heat resistance, in electrical properties such as dielectric constant and dielectric loss tangent and also in peel strength (adhesion property) to metal foils as electrical conductors, and applicable to electrical circuit boards.

D1 describes curable compositions based on norbornene resins which are cured using peroxide initiator, may comprise filler materials, additional elastomer components to impart flexibility, as well as other conventional additives. The

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Examples 19 onwards describe the application of a film of the composition to a copper foil followed by heat-curing.

Thus, D1 teaches the components of the curable dielectric composition of the application as well as the advantageous sought regarding in particular thermal stability, mechanical strength, and dielectric properties.

The application does not contain any pertinent comparative data showing a technical effect associated with any of the components of the composition.

In fact it appears that the subject-matter of the application is an arbitrary selection within the teaching of D1.

Hence, the subject-matter of claims 1 to 26 is deemed to be obvious in the light of D1, such that an inventive step in the sense of Article 33(3) PCT cannot be acknowledged.